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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/569,179

Applicant(s)LINNARTZ, JOHAN PAUL MARIE
GERARD**Examiner**

CHRISTIAN A. HANNON

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-16 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-16 and 18-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is response to applicant's response filed on 12/23/2008. Claims 1-16 & 18-22 are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 16 is directed to non-statutory subject matter.

Claim 16 recites "A computer readable medium embodying a computer program..." however the support for this limitation in the specification on page 3, fourth paragraph states, in part, "the above objects is [sic] solved by a computer program stored on a *record carrier* or made available for download". The vague reference to a 'record carrier' renders the claim non-statutory, since a 'record carrier' could be construed as a carrier signal or carrier wave, which are currently defined as non-statutory subject matter.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-4, 6-16 & 18-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. Claims 1, 14, 16 & 18 all recite the limitation "to obtain an output signal, said *output signal forming the desired radio signal*" [emphasis added] or an equivalent. The word "radio" in this context is defined as the "[u]se of *electromagnetic waves in the radio frequency range* to transmit or receive electric signals without wires connecting the points of transmission and reception" [emphasis added] (Webster's II. New Riverside University Dictionary. 1994). Nowhere in the applicant's specification can support be found for a radio frequency output signal. To the contrary the specification details a baseband output signal is the "desired" signal. ("the *digitized...third signal*" which is never provided for conversion back to the analog domain, page 8, lines 28, of Applicant's Specification, see also "[i]t is also preferred that the third signal (*preferably without further processing*) is interpreted..." [emphasis added], Applicant's Specification page 5, lines 6-7; "second means" and "third means" of figures 1 & 2 of applicant's drawings are disclosed (in part) as "A/D-conversion, ... (Fast) Fourier Transforming" but never disclosed as D/A-converters, see applicant specification page 5, Lines 19-22 & 28-30; see also "Although not shown in Fig. 2, the signals are...sampled into *digital samples*" and never provided for a conversion back to the radio frequency range as now claimed, page 9, lines 20-22, Applicant's Specification).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Dean et al (US 6,275,180), hereinafter Dean, in view of Rosenberg et al (US 6,559,724), Rosenberg.

Regarding claims 1, 14, 16 & 18, Dean teaches a diversity receiver, method & computer program, for receiving a desired microwave signal on a microwave channel, said diversity receiver comprising a first receiving branch having associated thereto a first antenna element for receiving a first signal (antenna 22 of figure 1; Dean) at least a second receiving branch having associated thereto a second antenna element for receiving a second signal (antenna 24 of figure 1; Dean) first means for obtaining from the first signal on the first receiving branch and the second signal on the second receiving branch a third signal representing an estimation of a spatial derivative, or difference, of at least one receiving channel parameter (difference amplifier 66 of figure 1; Dean), second means for processing the third signal to obtain a fourth signal (A TO D item 72 of figure 1; Dean) third means for processing the first signal to obtain a fifth signal (A TO D item 70 of figure 1) and fourth means for combining the fourth signal and the fifth signal to obtain an output signal, said output signal forming the desired microwave signal (item 90 of figure 1; Dean) wherein the third signal is used to cancel

or at least reduce signal distortions that occur due to time-variation of the receiving channel (Dean teaches reduction in interference between systems, an integral component of Dean's system is the third signal, output of 66 of figure 1; Column 5, Lines 4-10; Dean). However Dean fails to explicitly disclose that microwave signals are analogous to radio signals. Rosenberg teaches that, as used in radar systems, microwave signals are analogous as a subset of radio signals (Column 1, Lines 24-26; Rosenberg). Therefore it would be obvious to one of ordinary skill in the art that microwave signals are a subset of radio signals. While not all radio signals are microwave signals, all microwave signals are radio signals as disclosed by Rosenberg. Furthermore claims 14, 16 & 18 read analogous to claim 1 as rejected above and are similarly rejected.

Regarding claim 2, Dean & Rosenberg teach claim 1, wherein the first antenna element and the second antenna element are closely spaced and arranged behind each other in a direction of motion (v) of the diversity receiver. Dean discloses the diversity antennas for use in a vehicle, obviously in motion, and therefore it is obvious to one of ordinary skill in the art that depending on the vehicle's direction the antennas may be configured as required by the claim (Column 5, Lines 60-62; Dean). Furthermore as there are only a finite number of possibilities for antenna arrangement it would be obvious to one of ordinary skill in the art to attempt to try to find the best possible antenna arrangement.

Regarding claim 3, Dean & Rosenberg teach claim 1, wherein the first means obtains the third signal as a difference between the first signal and the second signal

(as shown difference amplifier 66, takes the first and second signals difference; Dean figure1).

Regarding claim 4, Dean & Rosenberg teach claim 1, wherein the third signal is interpreted as a temporal derivative of the at least one receiving channel parameter, at least when the diversity receiver is moved (Column 4, Lines 57-59; Dean).

Regarding claim 6, Dean & Rosenberg teach claim 1, wherein one or more of the first means the second means the third means and the fourth means are fully or in part realized by hardware interacting with software or by discrete components (see discrete components of figure 1 Dean).

Regarding claim 7, Dean & Rosenberg teach claim 1, wherein the second means performs A/D conversion (as shown figure 1 of Dean second means A TO D).

Regarding claim 8, Dean & Rosenberg teach claim 1, wherein the second means perform a signal weighting function comprising a multiplication with a weighting factor controlled to minimize signal distortions (Dean so as to include the amplifier to weight the signal with gain, amplifier 60 of figure 1; Dean).

Regarding claim 9, Dean & Rosenberg teach wherein the third means performs A/D-conversion (as shown in figure 1 of Dean third means A TO D).

Regarding claim 10, Dean & Rosenberg teach claim 1, wherein the at least one receiving channel parameter is a receiving channel transfer function (FFT 76 of figure 1, Dean).

Regarding claim 11, Dean & Rosenberg teach claim 1, wherein said diversity receiver further comprises switching means for switching from a signal on the first

receiving branch to a corresponding signal on the second receiving branch thereby creating a virtual third antenna element (Column 9, Lines 19-33; Dean).

Regarding claim 12, Dean & Rosenberg teach claim 1, wherein the first antenna element and the second antenna element are arranged in parallel but extend in different directions (figure 1 of Dean as shown).

Regarding claim 13, Dean and Rosenberg teach claim 1, wherein the diversity receiver is adapted to be used in wireless area network systems, as reasonably defined herein a wireless radar collision detection system covers an area whereby the network comprises those things which may be potential collisions.

Regarding claim 15, Dean and Rosenberg teach claim 14, wherein the act of estimating the spatial derivative comprises calculating a difference between the radio signal received at a first position of said two closely spaced positions and the radio signal received at a second position of said two closely spaced positions (Column 6, Lines 21-30; Dean).

Regarding claim 19, Dean and Rosenberg teach claim 18, wherein the first combiner is configured to form the third signal from the first signal and a difference signal, the difference signal being a difference between the first signal and the second signal (Column 6, Lines 21-30; Dean).

Regarding claim 20, Dean and Rosenberg teach claim 19, wherein said diversity receiver further comprises a weighting unit, coherence detector, configured to multiply the difference signal with a factor that depends on at least one of a speed of the

diversity receiver and a distance between the first antenna and the second antenna (Column 6, Lines 51-67; Dean).

Regarding claim 21, Dean and Rosenberg teach claim 19, wherein said diversity receiver further comprises a decorrelator configured to decorrelate the difference signal and the third signal and compute a weighting factor for weighting the difference signal (Column 6, Lines 51-67; Dean).

Regarding claim 22, Dean and Rosenberg teach claim 19, wherein said diversity receiver further comprises a multiplier configured to multiply the difference signal with a linearly increasing ramp function (amplifier 60 of figure 1).

Response to Arguments

7. Applicant's arguments filed 12/23/2008 have been fully considered but they are not persuasive.
8. In response to the Applicant's remarks that the Examiner is now "ignore[ing] the CAFC and declaring a claim non-statutory merely because the description (not the claim) may additionally include such non-statutory subject matter" (internal quotations omitted) (Applicant Remarks page 11, first paragraph), the Examiner expressly denies such an allegation. The Applicant need realize that the currently recited claim language of "a computer readable medium" itself is open to including non-statutory subject matter. Carrier waves modulated with data, a non-statutory embodiment, one which is reasonably interpreted by the claim, fails to meet the criteria for statutory subject matter,

especially in view, not solely in view, of the specification's offered support. Accordingly the claim remains rejected.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CHRISTIAN A. HANNON** whose telephone number is (571)272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. A. H./
Examiner, Art Unit 2618
February 25, 2009

/Edward Urban/

Supervisory Patent Examiner, Art Unit 2618